



GCSE Biology

Hormonal Co-ordination

Question Paper

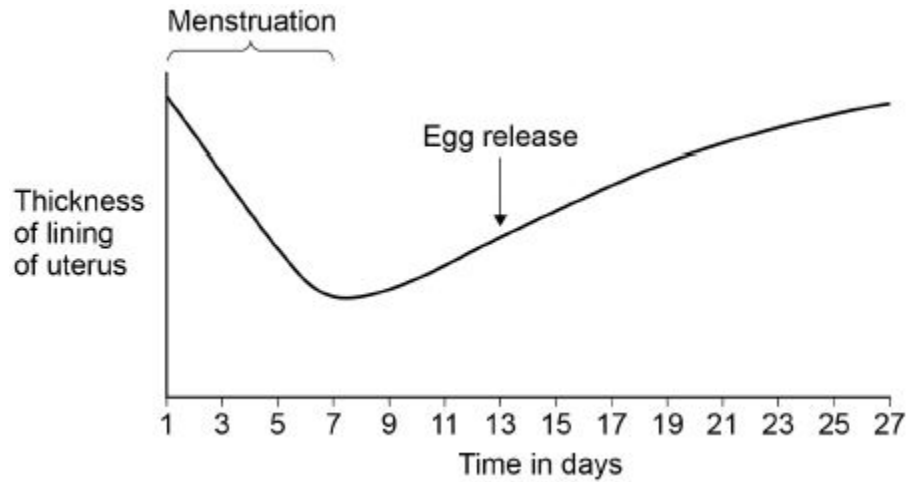
Time available: 60 minutes

Marks available: 50 marks

www.accesstuition.com

1.

The graph below shows some changes that occur during the menstrual cycle.



- (a) The graph above shows that the lining of the uterus thickens between days 7 and 27.
What is the purpose of thickening the lining of the uterus?

Tick **one** box.

- To allow implantation of the embryo
- To break down waste
- To prevent sperm reaching the egg

(1)

- (b) Which hormone causes thickening of the lining of the uterus?

Tick **one** box.

- Auxin
- Oestrogen
- Testosterone

(1)

(c) On which day is fertilisation most likely to occur?

Use information from the graph above.

(1)

Contraception can be used to lower the chance of pregnancy.

(d) Draw **one** line from each method of contraception to how the method works.

Method of contraception	How the method works
Contraceptive pill	Barrier to prevent sperm reaching the egg
Diaphragm	Contains hormones to stop eggs maturing
Spermicidal cream	Kills sperm
	Slows down sperm production

(3)

(e) The table below gives information about some different methods of contraception.

Method	Number of pregnancies per 100 women in one year	Possible Side effects
Diaphragm and spermicidal cream	8	Usually none, but can cause bladder infection in some women
Condom	2	None
Contraceptive pill	1	Mood swings, headaches, high blood pressure, blood clots, breast cancer

A man and a woman decide to use the condom as their method of contraception.

Suggest **three** reasons for this decision.

Use information from the table above and your own knowledge.

1. _____

2. _____

3. _____

(3)
(Total 9 marks)

2.

A person with Type 1 diabetes cannot make enough insulin.

(a) Which organ makes insulin?

Tick **one** box.

- | | |
|-----------------|--------------------------|
| Adrenal gland | <input type="checkbox"/> |
| Pancreas | <input type="checkbox"/> |
| Pituitary gland | <input type="checkbox"/> |
| Thyroid | <input type="checkbox"/> |

(1)

(b) A person with Type 1 diabetes can control the concentration of glucose in the blood by injecting insulin.

Complete the sentences. Choose answers from the box.

DNA	glycogen	kidney
liver	protein	skin

Insulin acts on an organ called the _____ .

This organ then takes in excess glucose from the blood and changes the glucose into _____ .

(2)

(c) Insulin cannot be taken as a tablet. This is because insulin is a type of protein.

What would happen to the insulin in the tablet if it reached the stomach?

(1)

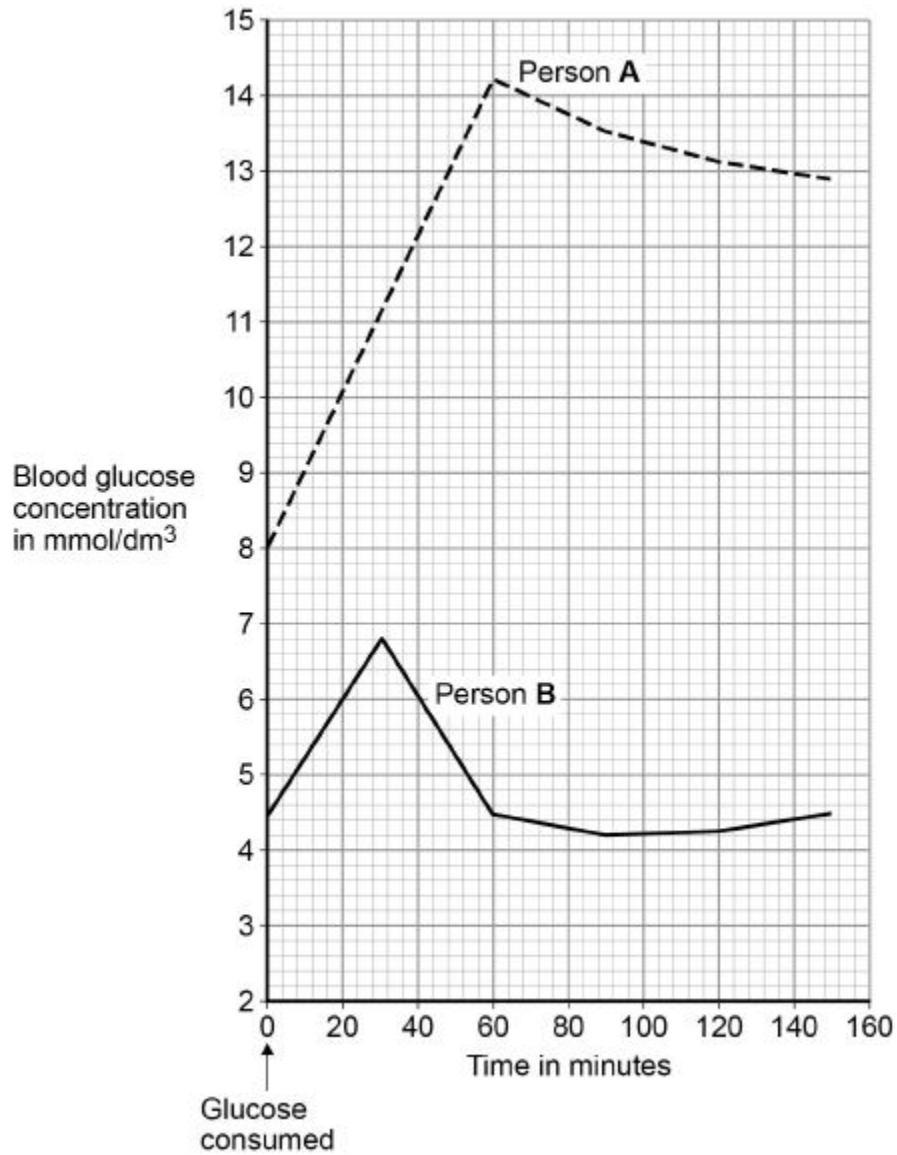
Two people each drank the same volume of a glucose drink.

Person A has Type 1 diabetes.

Person B does **not** have diabetes.

Figure 1 shows how the concentration of glucose in their blood changed.

Figure 1



(d) How much higher was the **highest** concentration of glucose in the blood of person **A** than the highest concentration in person **B**?

Use information from **Figure 1**.

Answer = _____ mmol/dm³

(2)

(e) Describe **one** other way that the results for person **A** were different from the results for person **B**.

Use information from **Figure 1**.

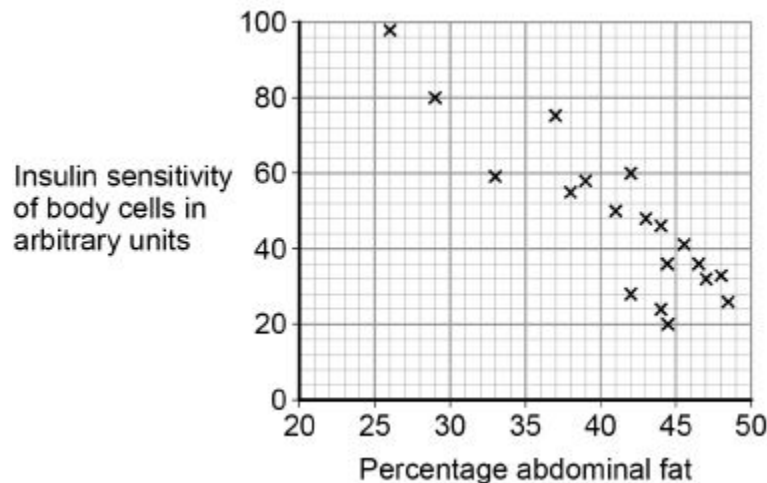
(1)

Type 2 diabetes is another form of diabetes. Type 2 diabetes is common in obese people.

People with Type 2 diabetes make enough insulin, but still cannot control their blood glucose concentration. This is because the body cells are not sensitive to the insulin.

Figure 2 shows information about abdominal fat and insulin sensitivity in body cells.

Figure 2



(f) What type of relationship is shown in **Figure 2**?

Tick **one** box.

A negative correlation

No correlation

A positive correlation

(1)

(g) A person is at risk of developing Type 2 diabetes.

Suggest **two** ways the person could lower the chance of developing Type 2 diabetes.

1. _____

2. _____

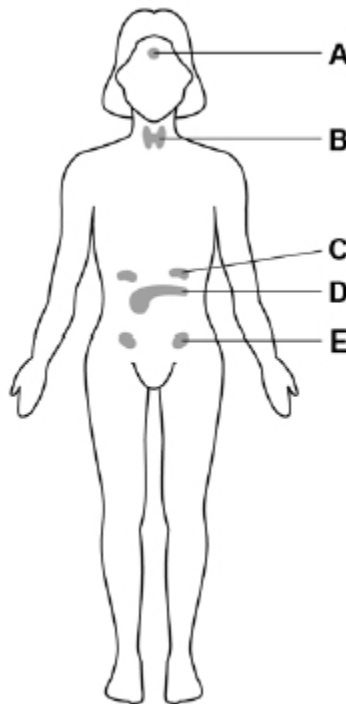
(2)

(Total 10 marks)

3.

The menstrual cycle in a woman is controlled by hormones.

The diagram shows some of the glands in a woman's body that produce hormones.



The hormones that control the menstrual cycle are produced by the pituitary gland and by the ovaries.

(a) Which gland is the pituitary gland?

Tick **one** box.

A B C D E

(1)

(b) Which gland is the ovary?

Tick **one** box.

A B C D E

(1)

(c) Complete the sentence.

In the menstrual cycle, one egg is released approximately every _____ days.

(1)

(d) Which hormone is used in the oral contraceptive pill?

Tick **one** box.

- Adrenaline
- Insulin
- Progesterone
- Testosterone

(1)

(e) Describe how the oral contraceptive pill stops a woman becoming pregnant.

(2)

(f) Complete the sentences.

Choose the answers from the box.

adrenaline insulin oestrogen progesterone testosterone

Development of the female secondary sex characteristics is controlled

by _____ .

Sperm production is stimulated by _____ .

(2)

(Total 8 marks)

4.

Many functions of the human body are controlled by chemicals called hormones.

(a) What is a hormone?

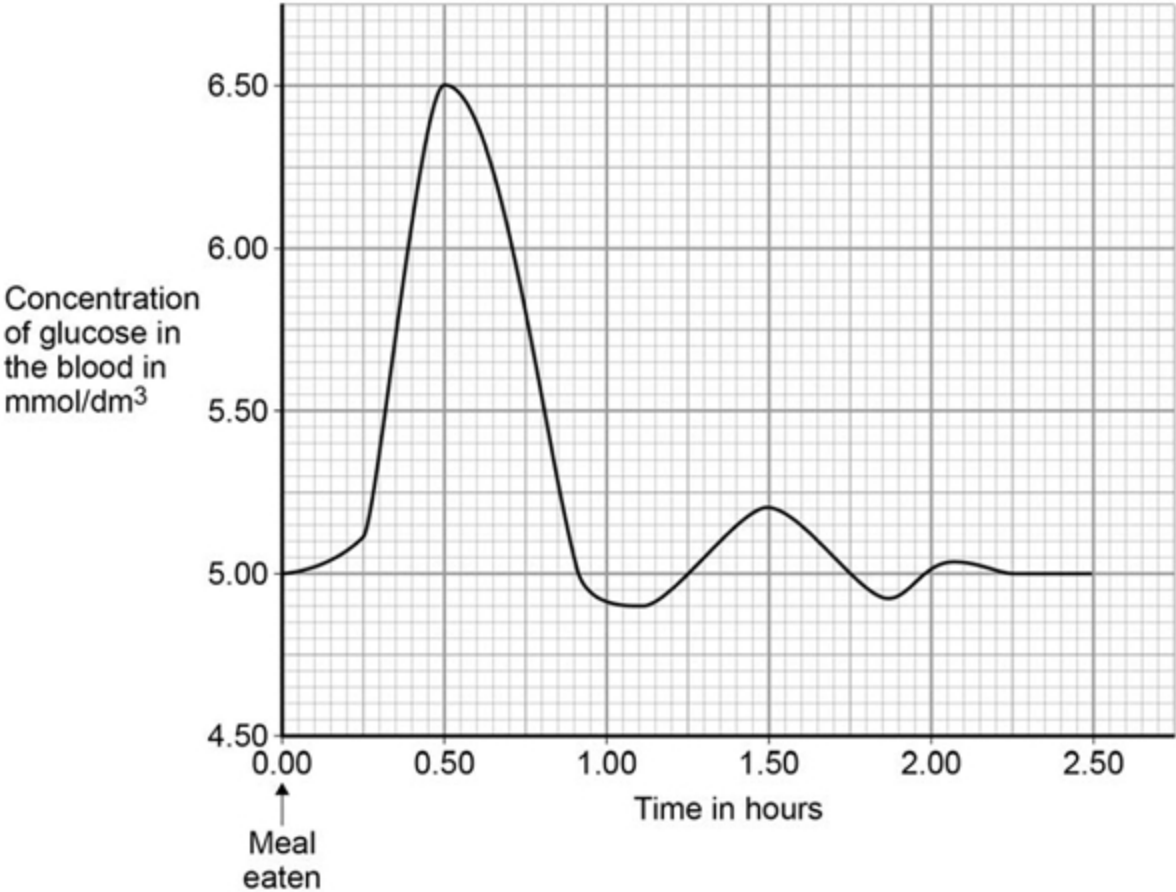
(3)

(b) Name the **two** hormones that control blood glucose concentration.

_____ and _____

(1)

The graph shows changes in the concentration of glucose in the blood of a healthy person following a meal.



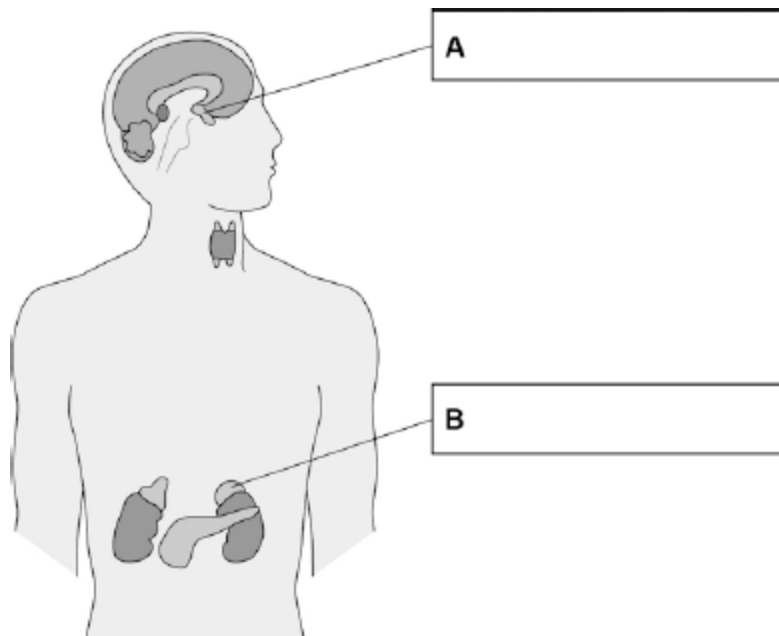
(c) Explain how negative feedback controls the blood glucose concentration during the first one and a half hours after the meal.

(4)
(Total 8 marks)

5. Glands in the body produce hormones.

(a) Use words from the box to label gland **A** and gland **B** on the diagram below.

Adrenal	Pancreas	Pituitary	Testis	Thyroid
----------------	-----------------	------------------	---------------	----------------



(2)

(b) Which gland produces oestrogen?

Tick **one** box.

- Ovary
- Pancreas
- Testis
- Thyroid

(1)

(c) **Table 1** shows some methods of contraception.

Table 1

Type of contraception	Percentage (%) of pregnancies prevented
Oral pill	>99
Implant	99
Condom	98
Diaphragm	<96

Which method of contraception in **Table 1** is **least** effective at preventing pregnancy?

(1)

(d) Which method of contraception in **Table 1** will protect against sexually transmitted diseases like HIV?

(1)

(e) Another method of contraception is called the intrauterine device (IUD).

There are two main types of IUD:

- copper
- plastic.

Both types of IUD are more than 99% effective.

Look at **Table 2**.

Table 2

	Copper IUD	Plastic IUD
How the IUD works	<ul style="list-style-type: none"> • releases copper • copper changes the fluids in the uterus to kill sperm 	<ul style="list-style-type: none"> • releases a hormone • hormone thickens mucus from the cervix so the sperm have more difficulty swimming to the egg
Benefits	<ul style="list-style-type: none"> • prevents pregnancy for up to 10 years • can be removed at any time • can be used as emergency contraception 	<ul style="list-style-type: none"> • prevents pregnancy for up to 5 years • can be removed at any time
Possible side effects	<ul style="list-style-type: none"> • very painful periods • heavy periods or periods which last for a long time • feeling sick, back pain 	<ul style="list-style-type: none"> • painful periods • light periods or no periods • feeling sick, headaches, breast pain, acne • hormones may affect mood • ovarian cysts

Evaluate the use of the plastic IUD as a contraceptive compared to the copper IUD.

Use the information in **Table 2**.

(4)
(Total 9 marks)

6.

Hormones are involved in controlling the menstrual cycle and fertility.

(a) (i) Use the correct answer from the box to complete the sentence.

auxin	follicle stimulating hormone (FSH)	thalidomide
--------------	---	--------------------

A hormone produced by the pituitary gland is _____

(1)

(ii) Use the correct answer from the box to complete the sentence.

luteinising hormone (LH)	oestrogen	statin
---------------------------------	------------------	---------------

A hormone produced by the ovaries is _____

(1)

(b) (i) Why are fertility drugs given to some women?

(1)

(ii) A doctor injects fertility drugs into a woman. After the injection, the hormones travel to the woman's ovaries.

How do the hormones travel to the ovaries?

Draw a ring around the correct answer.

through the bloodstream **through the neurones** **through the skin**

(1)

(c) Which **two** hormones are used in contraceptive pills?

Tick (✓) **two** boxes.

FSH

oestrogen

LH

progesterone

(2)
(Total 6 marks)